

WHAT IS CLAIMED IS:

[c1] 1. A delivery device for a thin film deposition or etching apparatus, comprising:

a heated gas inlet line for delivering a gas to a powered electrode of the apparatus, the gas inlet line maintained under a vacuum; and

a coupling device located between the powered electrode and the gas inlet line, the coupling device comprising insulation portion.

[c2] 2. The device of claim 1, wherein the gas inlet line is directly connected to the coupling device.

[c3] 3. The device of claim 2, wherein the coupling device is directly connected to the powered electrode.

[c4] 4. The device of claim 1, wherein the thin film deposition or etching apparatus comprises a PECVD apparatus.

[c5] 5. The device of claim 1, wherein the insulation portion is both thermally and electrically insulating.

[c6] 6. The device of claim 1, wherein the insulation portion comprises a plastic or a ceramic material.

[c7] 7. The device of claim 3, wherein the coupling device further comprises a flange for maintaining the gas inlet line under a vacuum.

[c8] 8. The device of claim 7, wherein the flange is connected to the gas inlet line, the insulation portion is connected to the powered electrode, and the insulation portion and flange are connected to each other.

[c9] 9. A delivery device for delivering a gas to a thin film deposition or etching apparatus, the system comprising:

a heated gas inlet line maintained under a vacuum; and

a coupling device located between a powered electrode of the apparatus and the gas inlet line, the coupling device comprising thermal and electrical insulation portion.

[c10] 10. The device of claim 9, wherein the gas inlet line is directly connected to the coupling device.

[c11] 11. The device of claim 10, wherein the coupling device is directly connected to the powered electrode.

[c12] 12. The device of claim 9, wherein the electrical insulation portion comprises a plastic or a ceramic material.

[c13] 13. The device of claim 11, wherein the coupling device further comprises a flange for maintaining the gas inlet line under a vacuum.

[c14] 14. The device of claim 13, wherein the flange is connected to the gas inlet line, the insulation portion is connected to the powered electrode, and the insulation portion and flange are connected to each other.

[c15] 15. A PECVD apparatus containing a delivery system, the system comprising:

a heated gas inlet line maintained under a vacuum; and

a coupling device located between a powered electrode of the PECVD apparatus and the gas inlet line, the coupling device comprising insulation portion and flange device for maintaining the gas inlet line under a vacuum.

[c16] 16. The device of claim 15, wherein the gas inlet line is directly connected to the coupling device and the coupling device is directly connected to the powered electrode.

[c17] 17. The device of claim 15, wherein the insulation portion is both thermally and electrically insulating.

[c18] 18. The device of claim 16, wherein the flange is connected to the gas inlet line, the insulation portion is connected to the powered electrode, and the insulation portion and flange are connected to each other.

[c19] 19. A method for supplying a gas to a thin film deposition or etching apparatus, comprising:

providing a delivery system containing a heated gas inlet line maintained under a vacuum, and containing a coupling device located between a powered electrode of the apparatus and the gas inlet line, wherein the coupling device comprises electrical and thermal insulation portion; and

providing a gas to the delivery system.

[c20] 20. The method of claim 19, wherein the gas inlet line is directly connected to the coupling device and the coupling device is directly connected to the powered electrode.

[c21] 21. The device of claim 20, wherein the coupling device further comprises a flange for maintaining the gas inlet line under a vacuum.

[c22] 22. The device of claim 21, wherein the flange is connected to the gas inlet line, the insulation portion is connected to the powered electrode, and the insulation portion and flange are connected to each other.

[c23] 23. A method for supplying a gas to a PECVD apparatus, comprising:

providing a gas;

flowing the gas through a heated gas inlet line;

flowing the gas through a coupling device containing insulation portion; and

flowing the gas to a powered electrode of the PECVD apparatus.

[c24] 24. The method of claim 23, wherein the gas flows directly from the gas inlet line to the coupling device.

[c25] 25. The method of claim 24, wherein the gas flows directly from the coupling device to the powered electrode.

[c26] 26. The method of claim 23, wherein the insulation portion is both thermally and electrically insulating.

[c27] 27. The method of claim 26, wherein the insulation portion comprises a plastic or a ceramic material.

[c28] 28. A method for depositing a film on a substrate, comprising:
providing a gas;
flowing the gas through a heated gas inlet line;
flowing the gas through a coupling device containing an insulation portion;
and
flowing the gas to a deposition apparatus where the gas is converted to a plasma and then deposited as a film on a substrate contained within the deposition apparatus.

[c29] 29. The method of claim 28, wherein the gas flows directly from the gas inlet line to the coupling device and then from the coupling device to a powered electrode of the deposition apparatus.

[c30] 30. A method for etching a film from a substrate, comprising:
providing a gas;
flowing the gas through a heated gas inlet line;
flowing the gas through a coupling device containing insulation portion; and

flowing the gas to an etching apparatus where the gas is converted to a plasma and then used to remove a portion of a film on a substrate contained within the etching apparatus.

[c31] 31. The method of claim 30, wherein the gas flows directly from the gas inlet line to the coupling device and then from the coupling device to a powered electrode of the etching apparatus.